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| **INTERNSHIP REPORT** | | |  |  |  | |  |  |  |
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**INDEX**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **1** | |  | **INTRODUCTION** | |  |  |  |
|  | |  | 1.1 Overview | |  |  |  |
|  | |  | 1.2 Purpose | |  |  |  |
| **2** | |  | **LITERATURE SURVEY** | |  |  |  |
|  | |  | 2.1 Existing problem | | |  |  |
|  | |  | 2.2 Proposed solution | | |  |  |
| **3** | |  | **THEORETICAL ANALYSIS** | |  |  |  |
|  | |  | 3.1 Block diagram | |  |  |  |
|  | |  | 3.2 Hardware / Software designing | | |  |  |
| **4** | |  | **EXPERIMENTAL INVESTIGATIONS** | | |  |  |
| **5** | |  | **FLOWCHART** | |  |  |  |
| **6** | |  | **RESULT** |  |  |  |  |
| **7** | |  | **ADVANTAGES & DISADVANTAGES** | | |  |  |
| **8** | |  | **APPLICATIONS** | |  |  |  |
| **9** | |  | **CONCLUSION** | |  |  |  |
| **10** | |  | **FUTURE SCOPE** | | **`** |  |  |
| **11** | |  | **BIBILIOGRAPHY** | |  |  |  |
|  | |  | **APPENDIX** | |  |  |  |
|  |  | | A. Source code | |  |  |  |
|  |  | |  |  |  |  |  |

**Chapter 1**

**Introduction**

* 1. **Overview**

A chatbot can answer various questions when asked such as Information on Weather Forecast, storing Locations and making Appointments as and when required. These questions are answered based on the pre-determined question set in the chatbot and the tasks are assigned accordingly. When a question falls outside the scope of the pre-determined question set, the option is typically to tell the customer the question isn’t valid or offer to speak to a real person.

Here, in this project we try to solve this problem of chatbot with the help of smart document understanding. Now, the chatbot can answer queries to those that were out of scope earlier.

* 1. **Purpose**

The purpose of the Project was to simplify the work of the customer to go through the entire User Manual of a product instead, relevant answers to their questions were provided by the chatbot. The project also aims to meet the Artificial Intelligence trends present in the market. It aims to increase the usability of the assistant by providing ease to the customer to operate it.

**Chapter 2**

**Literature Survey**

**2.1 Existing Problem**

Nowadays, most of the assistant are personalized by providing the necessary help required by the customer. It manages to have a conversation with the customer that are easily handled by the customer. It can provide various functionality like, providing the Store Location, Store working Hours, its Holidays and many such answers. However, the answer to the working of a product is unknown to the assistant and therefore suggest the customer to ask another customer or contact agent for that purpose. This does not solve the problem to the customers. Therefore, there is a requirement for increasing up the functionality of the assistant so that it could assist the customer about the product.

**2.2 Proposed Solution**

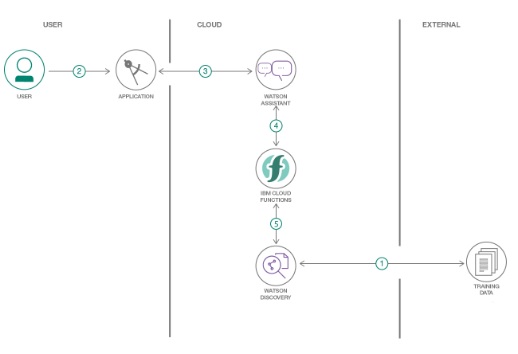
The existing assistant must be trained accordingly for providing the information of the product. This can be achieved with the help various services provide by the IBM Cloud Services. The IBM Cloud provides various services like the Watson Discovery Service which help introducing Smart Document Understanding to the Assistant. The Assistant is trained by the Watson Discovery by providing the User Manual to the Assistant so that it can go through the required information that is to be provided to the Customer.

**Chapter 3**

**Theoretical Analysis**

**3.1 Block Diagram**

The Block diagram shown below shows the complete mechanism of how the Assistant will the IBM Discovery Service to achieve Smart Document Understanding feature in its existing Skills.



**3.2 Hardware/ Software Designing**

Software designing includes the User Interface of the Dashboard which looks appealing to the user whenever he access the page. Designing of software is done with help of various Node-RED Dashboard nodes which helps in making the UI of Dashboard. The Node-RED Application various other functionalities that includes deciding up of the theme for the webpage, the Layout and many others. The Form node helps in taking up the input from the user for their queries to be solved.

The Template node in Node-RED App allows to design the webpage accordingly using NodeJS and HTML5 Languages. The entire UI is thus designed.

**Chapter 4**

**Experimental Investigations**

The Assistant was tested for various Natural Language Queries to determine the whether it was able to find out the relevant answers from the Document provided. Accordingly, the Assistant was trained in the Discovery Service by Relevancy test. In the Relevancy test, the answers determined by the assistant were marked ‘Relevant’ and ‘Not Relevant’ according to the accuracy that must be provided by the Assistant. The queries are then fired to check out whether the result are accurate and if not then relevancy test is again applied to the train the Watson Assistant.

**Chapter 5**

**Flowchart**

Input the Query on Web-page.

Go to Watson Assistant using API Key mentioned in Node-RED Watson Assistant Node.

Checks for the Web-Hook URL in the Assistant Skill to go to the Cloud Function

Cloud Function Activates and Watson Discovery comes into Action.

Check whether the query is from the User Manual.

No Yes

Contact the Agency

Or contact the Store Manager.

Searches the most accurate answer from the User Manual using Watson Discovery Service.

**Chapter 6**

**Result**

After applying the relevancy test on the Answers of the Assistant, we were able to get the accurate result to the Natural Language Query given to the Assistant. Smart Document Understanding feature helped the user to get the required information from the User Manual within few seconds.

**Chapter 7**

**Advantages and Disadvantages**

**Advantages:**

1. The Smart Document Understanding allows the Customer to get accurate answers to their queries within seconds thereby not utilizing their time in reading the whole User Manual.
2. It helps in achieving every required details from the Document.
3. The same feature could be applied to many other documents as and when required by the Customer.

**Disadvantages:**

1. The Smart Document Understanding does not work on Handwritten Documents.
2. At times the answers are not relevant enough to the question which therefore requires lots of Relevancy tests to train the Watson Assistant.

**Chapter 8**

**Applications**

The Smart Document Understanding can be applied to any other Documents as per requirement of the Customer. The Watson Assistant trains itself according to the Document provided and provides the relevant answers.

The various Applications are enlisted below:

1. **Analyzing Reports**:

This feature can be used by the companies for analyzing their reports as when required in seconds. The extra work to go through entire document would be eliminated thus saving time that would otherwise be required in other work. Any information required from a large document can be retrieved in seconds.

1. **Doctor’s Prescription:**

At time we don’t understand what information are required to be taken into consideration from the report given by the doctor. The Smart Document Understanding feature enables us to know the relevant information from the report thus helping us know the exact information.

**Chapter 9**

**Conclusion**

The Customer care help desk with Smart Document Understanding helps in achieving accurate answers when asked for a query. It provides ease to the Customer to know about the product. The Watson Discovery Service provided by the IBM Cloud helped in creating the Smart Document Understanding feature in Watson Assistant using Cloud Functions.

Thus, by introducing the new feature the Assistant was able to assist the Customer with more of its functionality.

**Chapter 10**

**Future Scope**

The Smart Document understanding can also be used for various other handwritten scanned documents in future. This will help in analyzing the handwritten content by the AI that will help the Assistant more reliable for various other works like and handwritten prescription of a doctor and many other such documents.

**Chapter 11**

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